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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/556,491	04/21/2000	Scott E. Moore	MI22-1422	6392

21567 7590 04/23/2004
WELLS ST. JOHN P.S.
601 W. FIRST AVENUE, SUITE 1300
SPOKANE, WA 99201

EXAMINER

THOMAS, DAVID B

ART UNIT	PAPER NUMBER
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3723

DATE MAILED: 04/23/2004

18

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/556,491

Applicant(s)

MOORE ET AL.

Examiner

David B. Thomas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-38,40-42 and 53-65 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36-38,40-42 and 53-65 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 April 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/1/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 36-38, 40-42, and 53-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams et al. (5,755,614 and 5,664,990) in view of Giuffre et al. (5,923,433).

Adams et al. disclose a system for recycling slurry in a CMP apparatus. A semiconductor wafer (not shown in FIG. 2) is pressed against pad 11 and rotated by carrier 12, which is attached to shaft 21. Pad 11 rotates clockwise, as indicated by arrow 22, and carrier 12 rotates clockwise, as indicated by arrow 25. Slurry 31 flows onto pad 11 through dispensing tube 33 and flows radially outward over pad 11. A portion of slurry 31 is used to polish a wafer as the slurry flows over the pad (Col. 5, par. 6). From heat exchanger 49, recycled slurry flows through a plurality of sensors, such as pH sensor 51, temperature sensor 52, and conductivity sensor 53. Other sensors that might be appropriate for a particular application include a *turbidity sensor*, densitometer, ion-specific electrodes, voltammeter cells, infrared sensors, ultraviolet sensors, or visual sensors (Col. 6, par. 7). The sensors are used for information, alarm, and control, singly or in combination, in one or more feedback loops for controlling the characteristics of the recycled slurry. Adams et al. (5,755,614 and 5,664,990) disclose

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the claimed invention except for disclosing the particulars of a turbidity sensor. Giuffre et al. ('433) disclose a turbidity sensor which provides the benefit of allowing a variety of different light, or electromagnetic radiation, sensors as well as physical sensors to be positioned on the sensor package 58 so as to surround or engage the flow tube in order to take a variety of different kinds of measurements on the media flowing therethrough (Col. 3, lines 52-67 and Col. 4, lines 1-9). Giuffre et al. ('433) teach that the turbidity sensor will allow a variety of different light, or electromagnetic radiation, sensors as well as physical sensors to be positioned on the sensor package 58 so as to surround or engage the flow tube in order to take a variety of different kinds of measurements on the media flowing therethrough (Col. 4, lines 4-9). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the CMP slurry recycle and supply system of Adams et al. (5,755,614 and 5,664,990), when utilizing a turbidity sensor, by providing a turbidity sensor such as that of Giuffre et al. ('443), which utilizes electromagnetic energy, in order to take a variety of different kinds of measurements on the media flowing therethrough, thereby enhancing the control of the characteristics of the slurry in the system of Adams et al.

Response to Arguments

3. Applicant's arguments filed March 1, 2004 have been fully considered but they are not persuasive. See the rejection above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David B. Thomas whose telephone number is (703)

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308-4250. The examiner can normally be reached on 7-4 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J. Hail can be reached on (703) 308-2687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David B. Thomas
Patent Examiner
Art Unit 3723

dbt